Agency for Healthcare Research and Quality
Advancing Excellence in Health Care

NATIONAL GUIDELINE CLEARINGHOUSE

General

Guideline Title

Shoulder pain and mobility deficits: adhesive capsulitis: clinical practice guidelines linked to the International Classification of Functioning, Disability, and Health from the Orthopaedic Section of the American Physical Therapy Association.

Bibliographic Source(s)

Kelley MJ, Shaffer MA, Kuhn JE, Michener LA, Seitz AL, Uhl TL, Godges JJ, McClure PW. Shoulder pain and mobility deficits: adhesive capsulitis. J Orthop Sports Phys Ther. 2013 May;43(5):A1-31. PubMed

Guideline Status

This is the current release of the guideline.

Recommendations

Major Recommendations

Levels of evidence (I–V) and grades of recommendation (A–F) are defined at the end of the "Major Recommendations" field.

Pathoanatomical Features

Clinicians should assess for impairments in the capsuloligamentous complex and musculotendinous structures surrounding the shoulder complex when a patient presents with shoulder pain and mobility deficits (adhesive capsulitis). The loss of passive motion in multiple planes, particularly external rotation with the arm at the side and in varying degrees of shoulder abduction, is a significant finding that can be used to guide treatment planning. (Grade of Recommendation E)

Risk Factors

Clinicians should recognize that (1) patients with diabetes mellitus and thyroid disease are at risk for developing adhesive capsulitis, and (2) adhesive capsulitis is more prevalent in individuals who are 40 to 65 years of age, female, and have had a previous episode of adhesive capsulitis in the contralateral arm. (Grade of Recommendation C)

Clinical Course

Clinicians should recognize that adhesive capsulitis occurs as a continuum of pathology characterized by a staged progression of pain and mobility deficits and that, at 12 to 18 months, mild to moderate mobility deficits and pain may persist, though many patients report minimal to no disability. (Grade of Recommendation B)

Diagnosis/Classification

Clinicians should recognize that patients with adhesive capsulitis present with a gradual and progressive onset of pain and loss of active and passive shoulder motion in both elevation and rotation. Utilizing the evaluation and intervention components described in these guidelines will assist clinicians in medical screening, differential evaluation of common shoulder musculoskeletal disorders, diagnosing tissue irritability levels, and planning intervention strategies for patients with shoulder pain and mobility deficits. (Grade of Recommendation F)

Differential Diagnosis

Clinicians should consider diagnostic classifications other than adhesive capsulitis when the patient's reported activity limitations or impairments of body function and structure are not consistent with the diagnosis/classification section of these guidelines, or when the patient's symptoms are not resolving with interventions aimed at normalization of the patient's impairments of body function. (Grade of Recommendation F)

Examination

Outcome Measures

Clinicians should use validated functional outcome measures, such as the Disabilities of the Arm, Shoulder and Hand (DASH), the American Shoulder and Elbow Surgeons shoulder scale (ASES), or the Shoulder Pain and Disability Index (SPADI). These should be utilized before and after interventions intended to alleviate the impairments of body function and structure, activity limitations, and participation restrictions associated with adhesive capsulitis. (Grade of Recommendation A)

Activity Limitation and Participation Restriction Measures

Clinicians should utilize easily reproducible activity limitation and participation restriction measures associated with their patient's shoulder pain to assess the changes in the patient's level of shoulder function over the episode of care. (Grade of Recommendation F)

Physical Impairment Measures

Clinicians should measure pain, active shoulder range of motion (ROM), and passive shoulder ROM to assess the key impairments of body function and body structures in patients with adhesive capsulitis. Glenohumeral joint accessory motion may be assessed to determine translational glide loss. (Grade of Recommendation E)

Interventions

Corticosteroid Injections

Intra-articular corticosteroid injections combined with shoulder mobility and stretching exercises are more effective in providing short-term (4 to 6 weeks) pain relief and improved function compared to shoulder mobility and stretching exercises alone. (Grade of Recommendation A)

Patient Education

Clinicians should utilize patient education that (1) describes the natural course of the disease, (2) promotes activity modification to encourage functional, pain-free ROM, and (3) matches the intensity of stretching to the patient's current level of irritability. (Grade of Recommendation B)

Modalities

Clinicians may utilize shortwave diathermy, ultrasound, or electrical stimulation combined with mobility and stretching exercises to reduce pain and improve shoulder ROM in patients with adhesive capsulitis. (Grade of Recommendation C)

Joint Mobilization

Clinicians may utilize joint mobilization procedures primarily directed to the glenohumeral joint to reduce pain and increase motion and function in patients with adhesive capsulitis. (Grade of Recommendation C)

Translational Manipulation

Clinicians may utilize translational manipulation under anesthesia directed to the glenohumeral joint in patients with adhesive capsulitis who are not responding to conservative interventions. (Grade of Recommendation C)

Stretching Exercises

Clinicians should instruct patients with adhesive capsulitis in stretching exercises. The intensity of the exercises should be determined by the patient's tissue irritability level. (Grade of Recommendation B)

Definitions:

Levels of Evidence

Individual clinical research articles were graded according to criteria described by the Centre for Evidence-Based Medicine, Oxford, United Kingdom.

I	Evidence obtained from high-quality diagnostic studies, prospective studies, or randomized controlled trials
II	Evidence obtained from lesser-quality diagnostic studies, prospective studies, or randomized controlled trials (e.g., weaker diagnostic criteria and reference standards, improper randomization, no blinding, less than 80% follow-up)
III	Case-controlled studies or retrospective studies
IV	Case series
V	Expert opinion

Grades of Recommendation

The overall strength of the evidence supporting recommendations made in these guidelines was graded according to guidelines described by Guyatt et al. as modified by MacDermid et al. and adopted by the coordinator and reviewers of this project. In this modified system, the typical A, B, C, and D grades of evidence have been modified to include the role of consensus expert opinion and basic science research to demonstrate biological or biomechanical plausibility.

Grades of Recommendation		Strength of Evidence
A	Strong evidence	A preponderance of level I and/or level II studies support the recommendation. This must include at least 1 level I study
B	Moderate evidence	A single high-quality randomized controlled trial or a preponderance of level II studies support the recommendation
C	Weak evidence	A single level II study or a preponderance of level III and IV studies including statements of consensus by content experts support the recommendation
D	Conflicting evidence	Higher-quality studies conducted on this topic disagree with respect to their conclusions. The recommendation is based on these conflicting studies
E	Theoretical/foundational evidence	A preponderance of evidence from animal or cadaver studies, from conceptual models/principles or from basic sciences/bench research support this conclusion
F	Expert opinion	Best practice based on the clinical experience of the guidelines development team

Clinical Algorithm(s)

None provided

Scope

Disease/Condition(s)

Adhesive capsulitis

Note: The term adhesive capsulitis will be used in these guidelines to describe both primary idiopathic adhesive capsulitis and secondary adhesive capsulitis related to systemic disease, such as diabetes mellitus and thyroid disorders, as well as extrinsic or intrinsic factors, including cerebral vascular accident, proximal humeral fracture, causative rotator cuff, or labral pathology.

Guideline Category

Diagnosis

Evaluation

Management

Rehabilitation

Risk Assessment

Treatment

Clinical Specialty

Family Practice

Internal Medicine

Orthopedic Surgery

Physical Medicine and Rehabilitation

Rheumatology

Sports Medicine

Intended Users

Physical Therapists

Physicians

Students

Utilization Management

Guideline Objective(s)

- To describe evidence-based physical therapy practice, including diagnosis, prognosis, intervention, and assessment of outcome, for musculoskeletal disorders commonly managed by orthopaedic physical therapists
- To classify and define common musculoskeletal conditions using the World Health Organization's terminology related to impairments of body function and body structure, activity limitations, and participation restrictions
- To identify interventions supported by current best evidence to address impairments of body function and structure, activity limitations, and participation restrictions associated with common musculoskeletal conditions
- To identify appropriate outcome measures to assess changes resulting from physical therapy interventions in body function and structure as well as in activity and participation of the individual
- To provide a description to policy makers, using internationally accepted terminology, of the practice of orthopaedic physical therapists
- To provide information for payers and claims reviewers regarding the practice of orthopaedic physical therapy for common musculoskeletal conditions
- To create a reference publication for orthopaedic physical therapy clinicians, academic instructors, clinical instructors, students, interns, residents, and fellows regarding the best current practice of orthopaedic physical therapy

Target Population

Patients with shoulder pain and mobility deficits

Interventions and Practices Considered

1. Patient history and physical examination
2. Assessment for impairments in the capsuloligamentous complex and musculotendinous structures surrounding the shoulder
3. Identification of risk factors (e.g., diabetes mellitus, thyroid disease, females 40 to 65 years of age)
4. Differential diagnosis
5. Validated functional outcome measures:
    - Disabilities of the Arm, Shoulder and Hand (DASH)
    - American Shoulder and Elbow Surgeons shoulder scale (ASES)
    - Shoulder Pain and Disability Index (SPADI)
6. Activity limitation and participation restriction measures
7. Physical impairment measures (pain, active and passive shoulder range of motion [ROM])
8. Corticosteroid injections
9. Patient education
10. Modalities:
    - Shortwave diathermy
    - Ultrasound
    - Electrical stimulation
11. Joint mobilization
12. Translational manipulation
13. Stretching exercises

Major Outcomes Considered

- Effectiveness of functional outcome measures
- Effectiveness of interventions in terms of pain relief, active and passive range of motion, and level of function
- Patient satisfaction

Methodology

Methods Used to Collect/Select the Evidence

Hand-searches of Published Literature (Primary Sources)

Hand-searches of Published Literature (Secondary Sources)

Searches of Electronic Databases

Description of Methods Used to Collect/Select the Evidence

It was acknowledged by the Orthopaedic Section, American Physical Therapy Association (APTA) content experts that only performing a systematic search and review of the evidence related to diagnostic categories based on International Statistical Classification of Diseases and Related Health Problems (ICD) terminology would not be sufficient for these International Classification of Functioning, Disability, and Health (ICF)-based clinical practice guidelines, as most of the evidence associated with changes in levels of impairment or function in homogeneous populations is not readily searchable using the ICD terminology.

Thus, the authors of these guidelines independently performed a systematic search of MEDLINE, Cumulative Index to Nursing and Allied Health Literature (CINAHL), and the Cochrane Database of Systematic Reviews (1966 through September 2011) for any relevant articles related to classification, examination, and intervention for musculoskeletal conditions related to classification, outcome measures, and intervention strategies for shoulder adhesive capsulitis and frozen shoulder. Additionally, when relevant articles were identified, their reference lists were hand searched in an attempt to identify other relevant articles.

Number of Source Documents

Not stated

Methods Used to Assess the Quality and Strength of the Evidence

Weighting According to a Rating Scheme (Scheme Given)

Rating Scheme for the Strength of the Evidence

Levels of Evidence

Individual clinical research articles were graded according to criteria described by the Centre for Evidence-Based Medicine, Oxford, United Kingdom.

I	Evidence obtained from high-quality diagnostic studies, prospective studies, or randomized controlled trials
II	Evidence obtained from lesser-quality diagnostic studies, prospective studies, or randomized controlled trials (e.g., weaker diagnostic criteria and reference standards, improper randomization, no blinding, less than 80% follow-up)
III	Case-controlled studies or retrospective studies
IV	Case series
V	Expert opinion

Methods Used to Analyze the Evidence

Systematic Review

Description of the Methods Used to Analyze the Evidence

Individual clinical research articles were graded according to criteria described by the Centre for Evidence-Based Medicine, Oxford, UK (http://www.cebm.net) for diagnostic, prospective, and therapeutic studies.

Methods Used to Formulate the Recommendations

Expert Consensus

Description of Methods Used to Formulate the Recommendations

Content experts were appointed by the Orthopaedic Section, American Physical Therapy Association (APTA) as developers and authors of clinical practice guidelines for musculoskeletal conditions of the shoulder that are commonly treated by physical therapists. These content experts were given the task of identifying impairments of body function and structure, activity limitations, and participation restrictions, described using International Classification of Functioning (ICF) terminology, that could (1) categorize patients into mutually exclusive impairment patterns upon which to base intervention strategies, and (2) serve as measures of changes in function over the course of an episode of care. The second task given to the content experts was to describe interventions and supporting evidence for specific subsets of patients based on the previously chosen patient categories.

Rating Scheme for the Strength of the Recommendations

Grades of Recommendation

The overall strength of the evidence supporting recommendations made in these guidelines was graded according to guidelines described by Guyatt et al. as modified by MacDermid et al. and adopted by the coordinator and reviewers of this project. In this modified system, the typical A, B, C, and D grades of evidence have been modified to include the role of consensus expert opinion and basic science research to demonstrate biological or biomechanical plausibility.

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E	Theoretical/foundational evidence	A preponderance of evidence from animal or cadaver studies, from conceptual models/principles or from basic sciences/bench research support this conclusion
F	Expert opinion	Best practice based on the clinical experience of the guidelines development team

Cost Analysis

A formal cost analysis was not performed and published cost analyses were not reviewed.

Method of Guideline Validation

External Peer Review

Internal Peer Review

Description of Method of Guideline Validation

The Orthopaedic Section, American Physical Therapy Association (APTA) also selected consultants from the following areas to serve as reviewers of the early drafts of these clinical practice guidelines:

- Claims review
- Coding
- Epidemiology
- Medical practice guidelines
- Orthopaedic physical therapy residency education
- Orthopaedic physical therapy clinical practice
- Orthopaedic surgery
- Rheumatology
- Physical therapy academic education
- Sports physical therapy/rehabilitation clinical practice
- Sports physical therapy residency education

Comments from these reviewers were utilized by the authors to edit these clinical practice guidelines prior to submitting them for publication to the *Journal of Orthopaedic & Sports Physical Therapy*.

Evidence Supporting the Recommendations

Type of Evidence Supporting the Recommendations

The type of supporting evidence is identified and graded for the recommendations (see the "Major Recommendations" field).

Benefits/Harms of Implementing the Guideline Recommendations

Potential Benefits

Appropriate diagnosis and orthopaedic management of patients with shoulder pain and mobility deficits, including adhesive capsulitis

Potential Harms

Not stated

Qualifying Statements

Qualifying Statements

These guidelines are not intended to be construed or to serve as a standard of medical care. Standards of care are determined on the basis of all clinical data available for an individual patient and are subject to change as scientific knowledge and technology advance and patterns of care evolve. These parameters of practice should be considered guidelines only. Adherence to them will not ensure a successful outcome in every patient, nor should they be construed as including all proper methods of care or excluding other acceptable methods of care aimed at the same results. The ultimate judgment regarding a particular clinical procedure or treatment plan must be made in light of the clinical data presented by the patient; the diagnostic and treatment options available; and the patient's values, expectations, and preferences. However, it is suggested that significant departures from accepted guidelines should be documented in the patient's medical records at the time the relevant clinical decision is made.

Implementation of the Guideline

Description of Implementation Strategy

An implementation strategy was not provided.

Implementation Tools

Patient Resources

For information about availability, see the *Availability of Companion Documents* and *Patient Resources* fields below.

Institute of Medicine (IOM) National Healthcare Quality Report Categories

IOM Care Need

Getting Better

Living with Illness

IOM Domain

Effectiveness

Patient-centeredness

Identifying Information and Availability

Bibliographic Source(s)

Kelley MJ, Shaffer MA, Kuhn JE, Michener LA, Seitz AL, Uhl TL, Godges JJ, McClure PW. Shoulder pain and mobility deficits: adhesive capsulitis. J Orthop Sports Phys Ther. 2013 May;43(5):A1-31. PubMed

Adaptation

Not applicable: The guideline was not adapted from another source.

Date Released

2013 May

Guideline Developer(s)

The Orthopaedic Section of the American Physical Therapy Association, Inc. - Medical Specialty Society

Source(s) of Funding

The Orthopaedic Section of the American Physical Therapy Association (APTA)

Guideline Committee

Not stated

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Financial Disclosures/Conflicts of Interest

Not stated

Guideline Status

This is the current release of the guideline.

Guideline Availability

Electronic copies: Available from the Journal of Orthopedic and Sports Physical Therapy Web site .

Print copies: Available from the Orthopaedic Section APTA, Inc, 2920 East Avenue South, Suite 200, La Crosse, WI 54601. E-mail: icf@orthopt.org.

Availability of Companion Documents

None available

Patient Resources

The following is available:

- Frozen shoulder: what can a physical therapist do for my painful and stiff shoulder? JOSPT perspectives for patients. J Orthop Sports Phys Ther. 2013 May;43(5):351. Electronic copies: Available in Portable Document Format (PDF) from the Journal of Orthopaedic and Sports Physical Therapy Web site .

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NGC Status

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